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Federal Communications Commission
Office of Secretary

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November 5, 1996

EX PARTE

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

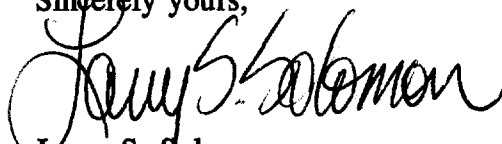
Re: ET Docket No. 96-102, NII/SUPERNET;
ET Docket No. 96-8, Part 15 Spread Spectrum Rules

Dear Mr. Caton:

Pursuant to Section 1.1206(a) of the Commission's Rules, notice is hereby given that on October 30, 1996, Gary Green, Chief Operating Officer, Metricom, Inc., Mike Pettus, Director, Systems Engineering, Metricom, Inc., and Henry Rivera and the undersigned, of this firm, met with Bruce Franca and Mike Marcus of the Office of Engineering and Technology to discuss the views of Metricom as set forth in its comments and reply comments in the above-referenced proceedings. The attached was used during the meeting. Two copies of this letter for each proceeding are being submitted pursuant to Section 1.1206(a)(1) of the Commission's Rules.

Please contact the undersigned if there are any questions concerning this matter.

Sincerely yours,


Larry S. Solomon

cc: Mr. Bruce Franca
Mr. Mike Marcus

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and

**PART 15 Spread Spectrum
NPRM's**

Metricom, Inc.

October 30, 1996



Metricom

NII/SUPERNet

- **Metricom supports the Commission's goal of providing advanced wireless telecommunications services to education, health care, libraries and business.**
- **Metricom applauds the Commission for proposing to allocate 350 MHz of spectrum for this purpose.**

NII/SUPERNet:

Part 15 Coexistence

As proposed, NII/SUPERNet and Part 15 devices will not successfully share the 5.8 GHz band.

- Sharing the band will be impossible because of disparities in:
 - Power levels
 - Spectral bandwidth
 - Non-spread, fragile etiquette

NII/SUPERNet rules must require Spread Spectrum operation in a manner consistent with Part 15 operations in the 5.8 GHz band.

NII/SUPERNet:

Licensing

Licensing of NII/SUPERNet devices is inconsistent with 15.247 operations in the 5.8 GHz band.

- Licensed operations:
 - Would license a fragile band occupant that would limit Part 15 use of the band.
 - Runs contrary to efficient spectrum use through sharing.
 - Defeats the purpose of unlicensed community networks: cost effective, affordable wireless applications.

NII/SUPERNet devices in the 5.8 GHz band must not be licensed.

NII/SUPERNet:

Safe Harbor

The proposed safe harbor for NII/SUPERNet would elevate NII/SUPERNet above Spread Spectrum Part 15 operations.

- There is no justification for regulating unlicensed NII/SUPERNet devices more favorably than other unlicensed devices
- Unlicensed devices in the public interest are already operating in the 5.8 band.

NII/SUPERNet must not be elevated above Part 15 operations in the 5.8 band.

- ***NII/SUPERNet rules must require Spread Spectrum operation in a manner consistent with Part 15 operations in the 5.8 GHz band.***
- ***NII/SUPERNet devices in the 5.8 GHz band must not be licensed.***
- ***NII/SUPERNet must not be elevated above Part 15 operations in the 5.8 band.***

Part 15 Spread Spectrum:

Antenna Gain

Unlimited antenna gain will enable more successful sharing and coexistence in Part 15 band.

- Real issues are propagation losses and ISM energy.
 - Antenna gain will permit operation in higher bands and environments with high levels of ISM energy.
- Directional antennas:
 - Maintain useful transmission range.
 - More easily control interference situations.
 - Reduce the potential area of interference.
 - Increase the sharing of spectrum in a given geographic area.

Provide unlimited antenna gain at 2.4 GHz and 5.8 GHz.

Part 15 Spread Spectrum: Number of Channels

Reducing the number of channels used for frequency hopping Spread Spectrum risks undesirable channelization of the 902-928 MHz band.

- Avoiding M-LMS is not the primary issue.
 - Addressed by safe harbors.
- Key issue is channelization of Part 15 bands.
- Metricom did (reluctantly) agree to 25 hopping channels with significantly reduced power.

Avoid channelization of Spread Spectrum bands

Part 15 Spread Spectrum:

NII/SUPERNet

**There is a significant inconsistency between the
Part 15 Spread Spectrum and NII/SUPERNet
NPRMs**

- EIRP power levels are inconsistent.
- Spread spectrum vs. channelization.
- Bandwidth requirements.

***NII/SUPERNet rules must be consistent with Part 15
Spread Spectrum NPRM.***

Part 15 Spread Spectrum:

Conclusions

Part 15 requirements:

- *Provide unlimited antenna gain at 2.4 GHz and 5.8 GHz.*
- *Avoid channelization of Spread Spectrum bands.*
- *NII SUPERNet rules must be consistent with Part 15 Spread Spectrum NPRM.*

NII/SUPERNet provides no advantage:

- *Part 15 rules are much more able to provide all of the capabilities desired by the NII/SUPERNet proposal except for bandwidth.*

NII/SUPERNet:

Transmit Power

The proposed transmit power is insufficient to provide useful networking inside buildings and across communities.

- The proposed EIRP of 0.1 watt:
 - Enables development of only very short range devices.
 - Fails to relieve requirement for internal wired networks in buildings.
 - Permits very short range point-to-point outdoor links.

Permitted EIRP must be sufficient for true in-building coverage and wide-area community networking.

NII/SUPERNet:

Power Density

The proposed power density and etiquette rules strongly favor wideband, fragile systems.

- High bandwidth RF transmission preference:
 - Reduces coverage footprint of RF transmissions.
 - Increases susceptibility to interference.
 - As proposed in the etiquette, increases latency for lower bandwidth systems.
 - Doesn't necessarily provide high bandwidth to the user.

Power density and etiquette must be realistic with respect to useful transmission range and robust, network operations.



The proposed etiquette is extremely complex and presupposes highly specific applications.

- **Etiquettes:**
 - Have not been proven to work.
 - Attempt to anticipate and dictate the future technology that will be developed.
 - Unavoidably presuppose the specific applications which the networks will support.
 - Can not replace intelligence in avoiding interference.

To encourage development of the best technical solutions, only very minimal and flexible technical standards should be adopted.